

Financing Combined Heat and Power: Techniques for Addressing Barriers and Opportunities

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ABSTRACT

Combined heat and power (CHP) can be a great way to improve the efficiency of business operations, no matter what size they are or how long they've been in place, as long as the project shows the proper thermal balance and electric price to fuel price that would make it suitable for financing. The first hurdle to successfully adopting a CHP strategy is convincing potential users that it makes economic sense by reducing costs, and can work.

But once this hurdle is crossed, the next one emerges. While economists have some term for impediments within the capital allocation decision making process, in the case of CHP it can be the more informal "Regis Philbin/Tom Cruise" barrier, with *the final answer being -- show me the money.*

This paper approaches CHP finance from the vantage point of this second hurdle. If CHP makes technical sense, and can also prove economic enough to install, then a core issue of CHP becomes – how can prospective users pay for this type of system? What sources can prospects consider for financing CHP projects? How can companies, especially manufacturers, deal with risk concerns and best sell their projects to a prospective financier?

These observations are targeted to two different audiences that both play a key role in the successful implementation of CHP systems: (1st) facility owners that are thinking about installing a CHP system; and (2nd) the service providers, university, agency, lab staff and others who will be promoting the use of CHP to business and industry. This paper will address issues and barriers to financing that each of these groups faces, and how they might be addressed. It will:

- explain why traditional bank financing is so hard to get;
- recap the types of financing most suitable for CHP projects; and
- discuss the types of public programs that might facilitate CHP financing.

Why Is Traditional Bank Financing So Hard to Secure?

While plenty of capital is available nationally, in fact many companies – especially manufacturers – have trouble gaining access to the money they need at affordable rates. This is especially true for long-term investments that are needed for process upgrades, such as installation of CHP systems. In addition, the normal problems associated with underwriting reviews of loan applications are often complicated by several factors when new systems are involved. Four key ones include:

- Lender uncertainty about the viability of proposed process-related changes; in the case of CHP, this could be questions about how it will work, how it will fit within

the existing production system, and what it will really mean for the company's bottom line – and how that will affect the borrower's ability to repay their loan.

- Lender adversity to operations involving new technologies; the lender may not understand it, may not have confidence in it -- which means that they may not finance it.
- The presence of the so-called “mill risk” or bankruptcy potential of the CHP host for the contract.
- Environmental uncertainties that many lenders associate with manufacturing projects (in terms of lender liability and collateral devaluation) may carry over to CHP projects.

Why Do Lenders Operate this Way?

Financing institutions typically limit their lending to low-risk or certain-risk propositions. No financial institution wants the stigma of too many bad or “nonperforming” loans.

In practice, this means that lenders are most comfortable with certainty, with things they know, and processes they understand. As a result, many often view innovations or new technologies as “red flag” situations to be avoided in favor of other types of lending. Small companies in particular often lack enough collateral to meet underwriting requirements or enough cash to meet loan processing costs and environmental assessment requirements.

While new technologies and efficiency improvements receive a lot of attention from public and corporate leaders, they often are shunned by bank underwriters. Innovative projects without a record of success and certainty often do not compete well in financial markets because lenders – looking to their own bottom line – are not sufficiently convinced that they will be repaid.

Individual institutions determine their own lending procedures to avoid this stigma, and these procedures vary. Some lenders have developed a speciality and an in-house expertise in certain types of lending, such as manufacturing equipment and facilities. They may be more willing to consider CHP projects because of this. Because they understand the needs, the practical risks, and true nature of collateral value in such circumstances, they are likely to be much more receptive to a loan request for CHP than a financier that focuses on shopping centers or commercial businesses.

Concerns over collateral risk really influence lenders. Basically, collateral risk is the possibility that the lender will not be able to recover the amount owed in the event of foreclosure, because of a decline in collateral value. This is a significant issue when financing equipment, since lenders worry that the equipment might not be marketable to others at a sufficient price to cover the debt in the event of foreclosure.

Lenders confront collateral risk in 2 ways. Often, they minimize the value of collateral to a level they are comfortable with. In the case of equipment, this may involve reducing its value to scrap value. Or, they reduce the loan-to-value ratio they will accept; often, with equipment, this means that lenders might only provide 20 or 30 percent of the purchase price, rather than the 70 to 80 percent they would loan in other situations. Clearly, either can undercut the viability of a CHP project. More widespread acceptance and use of CHP systems would help alleviate this concern.

Clearly, all sorts of factors affect any individual lender's decision whether or not to lend to companies seeking to finance equipment acquisition or capital improvements. Business owners must recognize that some of these factors will be out of the prospective borrower's control and may not even be relevant to the specific loan request at hand; some lenders clearly follow the "once burned, twice shy" philosophy when dealing with certain types of projects, often in industrial sectors.

No bank officer wants to party to a bad or "non-performing" loan, which would be a blight on their personal record. Therefore, companies often have to make a considerable effort to educate their lenders on the nature of their industry and the scope of the project they propose to undertake, since they may not understand it. In many cases, they are not successful in establishing a necessary level of comfort. Thus, business owners are encouraged to try other lenders if the first one they approach rejects their application. Technical information available through DOE and various state programs can prove valuable in this regard.

What *Do* Companies Need to Know about their Lenders that Could Influence their Approach to CHP Projects?

Various factors affect any given lender's basic view about the projects they think about financing -- especially manufacturing projects. But the lender's bottom line is risk -- ways to quantify it, avoid it, and manage it. Therefore, business owners must know their lenders and how they think about risk. When seeking financing for energy efficiency or process improvements, they should try (to the extent they can) to determine the answers to the following six questions.

- What is the lender's **MARKET POLICY-MAKING STRUCTURE** -- are they a local bank with purely local interests, are they a national bank with policies set in a distant home office, etc. This will influence the lender's flexibility and approach to specific local situations.
- What is the lender's **SPHERE OF ACTIVITY OR MARKET NICHE** -- is the lender's focus primarily on commercial projects, multi-family housing projects, shopping malls, or industrial projects; determining this will offer some sense of the lender's receptivity to CHP and other efficiency projects.
- What is the lender's **LEVEL OF SOPHISTICATION AND KNOWLEDGE** base -- the more the lender knows about and understands energy and industrial facility issues and needs, the more willing they are likely to be to finance such projects.
- What is the lender's **PAST EXPERIENCE** in financing energy and similar types of projects -- financiers who have undertaken such projects are less likely to be swayed by horror stories and more likely to be open to this type of loan
- What are the types of lender "**TRIGGER**" **ISSUES** -- red flags that will dissuade them from lending on CHP, such as past problems with collateral disposition or adequacy of value, failed energy loans, etc.
- What is the lender's **COMFORT LEVEL WITH NEW TECHNOLOGIES**, and their internal capacity to understand how new technologies can work and how likely they are to achieve the benefits they predict; this will help them to be able to more realistically underwrite the loan.

In general, prospective borrowers must remember that rejection by one lender may only reflect his or her view of the risk involved with CHP technology, and not the broader credit-worthiness of the applicant. Therefore, companies should seek out lenders that may be a better fit with the CHP project needing financing.

In addition, prospective borrowers need to recognize that the decision-making process is a fluid one within any given bank. It can vary because of loan officer interpretations, the reputation of the loan officer who may be handling your loan request (either conservative or progressive), how hungry the bank is to make loans, the nature of the bank loan committee and their comfort with basic data presented, the bank's past track record with CHP and manufacturing loans, and so forth.

What Types of Financing Should Be Considered for CHP Projects?

There are a number of financing options to choose from, and a discussion of five key ones follows. In general, company officials need to remember that the most appropriate approach will vary, operation by operation, depending on a number of factors: the size of the facility, nature of investment needed, primary purpose of capital proceeds, and the financial health of the company, especially its track record of cash flow.

Commercial Loans

In addition to the previous discussion of commercial loans, it is important to note that commercial lenders are more inclined to provide money to manufacturers if they can gain the extra comfort afforded by a loan guarantee. At the federal level, the federal Small Business Administration may participate in loans for these purposes. SBA guarantees up to 90 percent of the principal balance of loans up to \$155,000, and 85 percent of loans up to \$500,000. This makes these loans more acceptable, and less risky, to participating private lenders. SBA has designated several hundred lenders from around the country as Preferred Lenders; these banks have expedited decision-making authority delegated to them by SBA. Company officials need to note that SBA-backed loans are not necessarily cheap money; rates range from prime-plus 2.25 percent to prime-plus 2.75 percent.

Lease-Purchase or Vendor Financing

Most companies are familiar with the leasing concept. Leasing can be an attractive financing option to use to get new equipment. In energy project financing, the energy efficiency savings realized from new equipment -- the bottom line impacts on the bill -- often can offset the lease payment. Typically, the value of the equipment and the cost of its installation is amortized over the term of the lease, making its eventual acquisition by the company that leases it more affordable. Companies thinking about CHP should explore the two types of lease arrangements that are commonly available.

- (1) FINANCE LEASES are essentially installment purchases. Companies pursuing this option will need little or no initial money to purchase the equipment. Finance leases may be offered by leasing companies, ESCOs, suppliers, and installation contractors.
- (2) OPERATING LEASES are also known as vendor financing. In this scenario, the lessor owns the equipment and leases it out for a pre-determined contract period. The lessor is often the maker of the equipment being acquired. In the case of energy efficiency equipment, the vendor often guarantees that the customer/manufacturer will pay no more for the lease than the energy savings it generates.

Lease financing has several advantages. For example, the entire cost of the property or equipment is financed, rather than some percentage determined by a loan-to-value ratio. Leasing helps companies limited in terms of taking on new debt or using lines of credit.

Leasing also has several disadvantages. For example, contracts may carry penalties upon cancellation, an important consideration if the equipment becomes out-dated before the lease expires. Also, the cost of removal is usually borne by lessee if the equipment is not purchased or leased again at the end of the lease term.

Energy Service Companies (or ESCOs) that Use Financing Contracts based on a Shared Savings Strategy

ESCOs provide energy improvements and management services to companies, and get paid out of the savings realized from the improvements. Unlike many traditional vendors, most ESCOs do not require or expect any cash up-front for the energy efficiency measures that they acquire and install on behalf of participating companies. This makes ESCO projects especially attractive for companies where cash flow or environmental concerns make traditional financing hard to get or more costly.

Company Earnings or Internal Cash Flow

Some companies may choose to finance CHP improvements out of cash flow generated from company activities. In this way, loan transaction costs and environmental testing costs can be avoided with self-financed projects. In this situation, the biggest challenge is typically convincing the company bean counters that this allocation of capital for CHP should be undertaken, rather than other projects.

Federal and/or State Financial Assistance Programs

Companies can use these creatively to support CHP projects. Several federal agencies and nearly all states have put economic development programs in place that can be tweaked to help companies gain access to the money they need to put CHP systems in place.

The federal government offers several loan and loan guarantee programs that companies can tap to support energy and production modernization activities. Nearly all federal programs are delivered as general business development assistance programs. SBA loan guarantees have already been mentioned SBA loan guarantees; they are used in conjunction with private

commercial loans. All types of companies -- manufacturers as well as commercial and service enterprises -- are eligible to use them. Only one federal financing initiative -- tax-exempt industrial development bonds -- is targeted exclusively to manufacturers. None focus specifically on CHP.

Therefore, the challenge companies face when contemplating use of these programs for CHP and other purposes is linking their specific financing needs with broader program criteria, and building a competitive case for their applications.

Nearly all of the most common types of federal financing assistance could be applied -- either individually or in combination with other public and private assistance -- to help pay the freight for CHP systems. They fall into several types. The three most suited for CHP projects are debt, tax incentives, and grants.

1. *Debt programs* aim to make loan capital more available, and at the best rates and terms possible. The Small Business Administration is the the leading federal agency in this area, with more than \$10 billion in assistance available this year. In recent years, SBA has made more of an effort to help companies incorporate new technologies or make efficiency improvements.

Other agencies have potentially useful programs in place as well.

- HUD's Community Development Block Grant (CDBG) and Economic Development Initiative (EDI) resources can be loaned to private companies in some cases; for example, Chicago is exploring the use of its block grant funds for a CHP-based power park in a distressed west-side neighborhood;
 - EDA traditionally funds projects to develop or upgrade infrastructure and utility services at industrial parks, and CHP could be made to fit their criteria.
2. In terms of *tax incentive programs*, the only federal incentive specifically targeted to manufacturers are tax-exempt industrial development bonds, or IDBs, which can be used for a variety of financing needs -- including equipment acquisition. Each state authorizes its own IDB issuing entities, and defines its own program priorities. CHP for residential purposes could potentially be financed through low-income housing tax credits, or as part of HUD-supported housing development projects.
 3. Finally, *grants* are available under limited circumstances. Many companies -- when they decide to seek public financing assistance -- think of grants. Grants are direct transfers of money to the recipient, usually with no payback obligation. Private businesses need to know that very little direct grant assistance is available, and the competition for it is fierce. The average grant amounts for each project are kept as low as possible because grants are designed to leverage other sources of financing. Many grants are cost-shared -- requiring financial commitments from recipients. Most grants are done as pass-throughs -- funds are provided to an intermediary, such as a city or development organization, which in turn provides money for the private company. The most common source of this kind of funding is SBA, through its

Section 504 development company program. Local HUD grantees may provide resources to companies operating in distressed areas, which could be used to finance a variety of activities, including CHP.

In addition, every state offers a host of financing programs that could be applied to CHP project financing needs. State and local governments offer most of the tax incentives that are best suited to CHP-type projects, including abatements, equipment tax exemptions, and incentives for capital investment.

The best source of preliminary information on these programs is the state office of economic or industrial development, and its web site. And as with federal programs, the challenge that companies face making the needs of a specific CHP project applicable to state program eligibility and review criteria, and structuring an application to make it as competitive as possible within the parameters of the specific program.

Conclusions

CHP has incredible potential to significantly reduce energy costs, and these systems are growing in popularity as their benefits become more widely recognized. The public sector has the potential to stimulate significant investment in CHP systems; for example, Congress could adopt more consistent tax depreciation provisions to accelerate the depreciation of CHP equipment; this would make these investments more attractive. Ultimately, though, CHP systems will be able to attract needed financing.